

CX9000 Series  
Coaxitron®  
Receiver/Driver

Installation/  
Operation Manual

C554M-A (5/98)

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## REVISION HISTORY

<u>Manual #</u>	<u>Date</u>	<u>Comments</u>
C554M	4/95	Original version.
	8/96	Changed fusing values for fuse #F1, Figure 1.
	8/97	Changed fusing values for fuse #F2, Figure 1 per ECO# 93-362.
C554M-A	5/98	Rev A. Changed manual to new format and manual pagination. Included the CE version metal box receiver/drivers.

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### 1.1 IMPORTANT SAFEGUARDS AND WARNINGS

Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by qualified service personnel and conform to all local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6 or 6P enclosure, it is designed for Indoor use only and it must not be installed where exposed to rain and moisture.
3. Only use replacement parts recommended by Pelco.
4. After replacement/repair of this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.

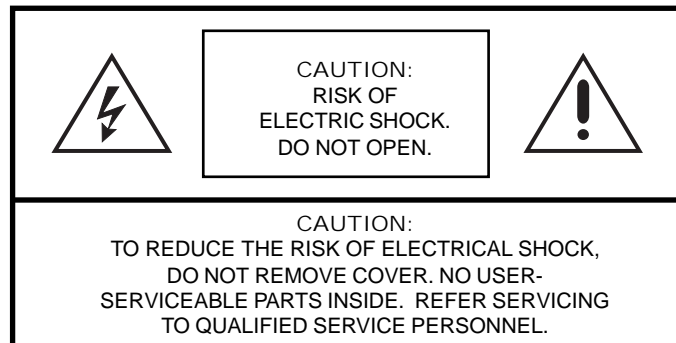
The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

## 1.2 REGULATORY NOTICES

NOTE: This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## 1.3 UNPACKING INSTRUCTIONS

Unpack and inspect all parts carefully.

The following items are supplied:

- 1 CX9000 Series Coaxitron® Receiver/Driver
- 1 Installation/Operation Manual (C554M-A)

Be sure to save the shipping carton, boxes and inserts. They are the safest material in which to make future shipments.

If an item appears to have been damaged in shipment, replace it properly in its box and contact the factory at 1-800-289-9100 or 1-559-292-1981 for a replacement. (International customers fax 1-559-348-1120 for authorization and instructions.)

If an item needs to be returned to the factory for repair, consult the WARRANTY AND RETURN INFORMATION section of this manual for instructions.

## 1.4 RECOMMENDED TOOLS

Pelco does not supply the basic tools needed for the installation process. The following tools are recommended.

- Medium adjustable wrench or socket wrench
- Medium Phillips screwdriver (to open anodized metal box)
- Power drill
- Wire stripper
- Wire cutter
- AMP type crimper

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## 2.0 DESCRIPTION

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The Coaxitron® receiver/driver operates on the principle of transferring control information and video on the same line. A train of pulses containing control information is superimposed on the video at VIS time. This transmitted train of control information can originate from a variety of Pelco controllers, including the CM6700, CM7500, CM8500, CM9500, CM9760-CXT, MPT9000, and MPT9008.

Depending on receiver/driver options, wiring and controller capabilities, the possible range of control information that can be transferred, acted upon and augmented by the receiver is covered by the following list of functions:

- |               |                         |
|---------------|-------------------------|
| 1. Pan Left   | 9. Iris Open            |
| 2. Pan Right  | 10. Iris Close          |
| 3. Tilt Up    | 11. Camera Power On/Off |
| 4. Tilt Down  | 12. Auto/Manual Scan    |
| 5. Zoom In    | 13. AUX 1 (Manual Iris) |
| 6. Zoom Out   | 14. AUX 2 (Auto Iris)   |
| 7. Focus Near | 15. AUX 3               |
| 8. Focus Far  | 16. AUX 4               |

When used with a CX900TLC Local Test Board Plug-in Module, manual control of functions can be performed from the receiver location for local operation and to check for the valid reception of a given command from the controller.

Pan/tilt, zoom lens and camera power control is included on the main (video and logic) receiver board, which eliminates malfunctions due to improper wiring or broken wires.

The receiver/driver includes the following standard functions on a single circuit board and chassis with integral power supply:

1. Pan/tilt (24 VAC or 120 VAC as ordered from the factory)
2. Zoom lens – Zoom, iris, and focus with adjustable speed (speed not remote controllable)
3. Camera power (24 VAC or 120 VAC as ordered from the factory)
4. An open collector transistor output (latching) intended for use in manual override of an automatic iris control

## 2.1 MODELS

### Outdoor

CX9024RX	Coaxitron® outdoor receiver for 24 VAC pan/tilts with power supply for pan/tilt, zoom lens, 24 VAC camera power. 120 VAC input
CX9024RX/220	Same as CX9024RX except 230 VAC input and CE compliant
CX9024RX-12V	Same as CX9024RX except 12 VDC camera power
CX9024RX-PP*	Same as CX9024RX except with preset option
CX9024RX-PP220*	Same as CX9024RX-PP except 230 VAC input and CE compliant
CX9115RX	Coaxitron® receiver for 120 VAC pan/tilts with power supply for pan/tilt, zoom lens, 120 VAC camera power. 120 VAC input
CX9115RX-PP*	Same as CX9115RX except with preset option
CX9220RX	Coaxitron® receiver for 230 VAC pan/tilts with power supply for pan/tilt, zoom lens, 230 VAC camera power. 230 VAC input and CE compliant
CX9220RX-PP*	Same as CX9220RX except with preset option
CX9224RX	Same as CX9024RX except 24 VAC input
CX9224RX-PP*	Same as CX9224RX except with preset option

### Indoor

CX9024RXI	Same as CX9024RX except for indoor use
CX9024RXI-12V	Same as CX9024RXI except 12 VDC camera power
CX9024RXI-PP*	Same as CX9024RXI except with preset option
CX9115RXI	Same as CX9115RX except for indoor use
CX9115RXI-PP*	Same as CX9115RXI except with preset option
CX9220RXI	Same as CX9220RX except for indoor use
CX9220RXI-PP*	Same as CX9220RXI except with preset option
CX9224RXI	Same as CX9224RX except for indoor use
CX9224RXI-12V	Same as CX9224RXI except with 12 VDC camera power
CX9224RXI-PP*	Same as CX9224RXI except with preset option

\* Receivers with the preset designation (PP) are for use with preset capable Coaxitron® controllers. Controllers with preset ability include the CM6700, CM7500, CM8500, CM9500, and CM9760-CXT.



## 2.2 CERTIFICATIONS

The products identified below have been tested and certified for agency compliance as noted below.

Model	Agency Compliance Certification			
	CE	FCC	UL	CSA/cUL
CX9024RX		X	X	
CX9024RX-12V		X	X	
CX9024RX-PP		X	X	
CX9024RX-PP220	X			
CX9024RX/220	X			
CX9024RXI		X	X	
CX9024RXI-12V		X	X	
CX9024RXI-PP		X	X	
CX9115RX		X	X	
CX9115RX-PP		X	X	
CX9115RXI		X	X	
CX9115RXI-PP		X	X	
CX9220RX				
CX9220RX-PP				
CX9220RXI				
CX9220RXI-PP				
CX9224RX				
CX9224RX-PP		X	X	
CX9224RXI		X	X	
CX9224RXI-12V		X	X	
CX9224RXI-PP		X	X	

Applicable CE, FCC, UL, and CSA/cUL directives/standards:

- 93/68 EEC–CE Mark Directive
  - 89/336/EEC, 92/31/EEC–Electromagnetic Compatibility (EMC) Directives
  - EN 55022: 1984 Class B–Radio-frequency emissions limits
  - EN 50082-2: 1992–Immunity standard
  - IEC 801-2: 1984–ESD immunity
  - IEC 801-3: 1984–Radiated field immunity
  - IED 801-4: 1988–Electrical transients
- 73/23/EEC–Low Voltage Directive (EMC)
  - EN 60950–Safety of ITE Equipment
- FCC–47 CFR, Part 15, Subpart B, Class B
- UL Listed (DRQH) E119552

Additional applicable standards:

- NEMA Type 4X (except \*RXI models, NEMA Type 1)
- IP 56 (except \*RXI models, IP 10)

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## 3.0 INSTALLATION

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### 3.1 MOUNTING THE CX9000

*NOTE: When installing the CX9000 to a wall outdoors, seal the bolt holes with an appropriate sealant. Apply the sealant around the bolt holes between the unit and the mounting surface. This will prevent possible water damage to the wall caused by rainwater leaking through the mounting bolt holes. (This may only be a problem when the mounting bolts go completely through the wall.)*

1. Determine the location where the CX9000 is to be installed.
2. Using the CX9000 box as a template, mark the hole pattern on the mounting surface. Drill holes in the mounting surface.
3. Attach the CX9000 securely with four fasteners of appropriate length (not supplied.)

### 3.2 VIDEO

#### Receiver Video Input

Connect the video input to the BNC connector marked IN on the CX9000 box. The input video connector accepts the signal from the camera serviced by the receiver. The receiver provides 75 ohm cable termination and an isolation amplifier to prevent the control pulse train from being fed to the camera.

Refer to Table A. Video Coaxial Cable Wiring Distances.

#### Receiver Video Output

Connect the video output to the BNC connector marked OUT on the CX9000 box. The output video connector is connected to the corresponding controller video input connector. Proper termination of this cable is vital to the operation of the equipment. Although loop-through connections in this cable are permissible, power splitters or line amplifiers should not be used.

Refer to Table A. Video Coaxial Cable Wiring Distances.

**Table A.** Video Coaxial Cable Wiring Distances

Cable Type*	Maximum Distance
RG59/U	750 ft (229 m)
RG 6/U	1,000 ft (305 m)
RG11/U	1,500 ft (457 m)

\* Minimum cable requirements:  
75 ohms impedance  
All-copper center conductor  
All-copper braided shield with 95% braid coverage

**Proceed to Section 3.3, CONNECTOR ASSEMBLY**

### 3.3 CONNECTOR ASSEMBLY



**WARNING:** *Power for enclosure models utilizing heater/blowers cannot be tapped off the secondary of the Coaxitron® receiver transformer or off of camera AC power (see Figure 2, Pins 9 and 14). Instead, for example, enclosure power for these purposes could be run off the primary of the Coaxitron® transformer and routed to the enclosure via unused Pins 15 and 16 of the 37-Pin connector.*



**WARNING:** *There is no on/off switch. The CX9000 is "hot" when the fuse is installed and the input wiring is connected.*

Assemble the connector parts according to the instructions below. Detail B, in Figure 1, reflects the pin arrangement specific to the CX9000 Series receiver/drivers. Refer to Figures 1 and 2 during assembly. For best results, use an AMP style crimper when making the wire to pin connection.

The instructions that follow apply to all AMP style connectors regardless of pin size or pin number.

1. Slide the connector clamp assembly over the conductor cable. If the diameter of the conductor cable is such that the rubber boot will slide over it easily then slide the rubber boot onto the conductor cable at this time. If not, discard the rubber boot.
2. Prepare the wires from the conductor cable as follows:
  - a. Strip at least 1-inch (2.54 cm) from the cable jacket to expose the wires. You may need to strip more from the cable jacket if you have more wires.
  - b. Strip 1/8-inch (0.318 cm) from each wire.
  - c. Using an AMP style crimper, crimp the wires and their insulation to the connector pins. Refer to Detail A in Figure 1.
3. Slide the connector pins into the appropriate holes in the connector body until they snap into place. Refer to Figures 1 and 2 for correct pin arrangement, depending on model and options.

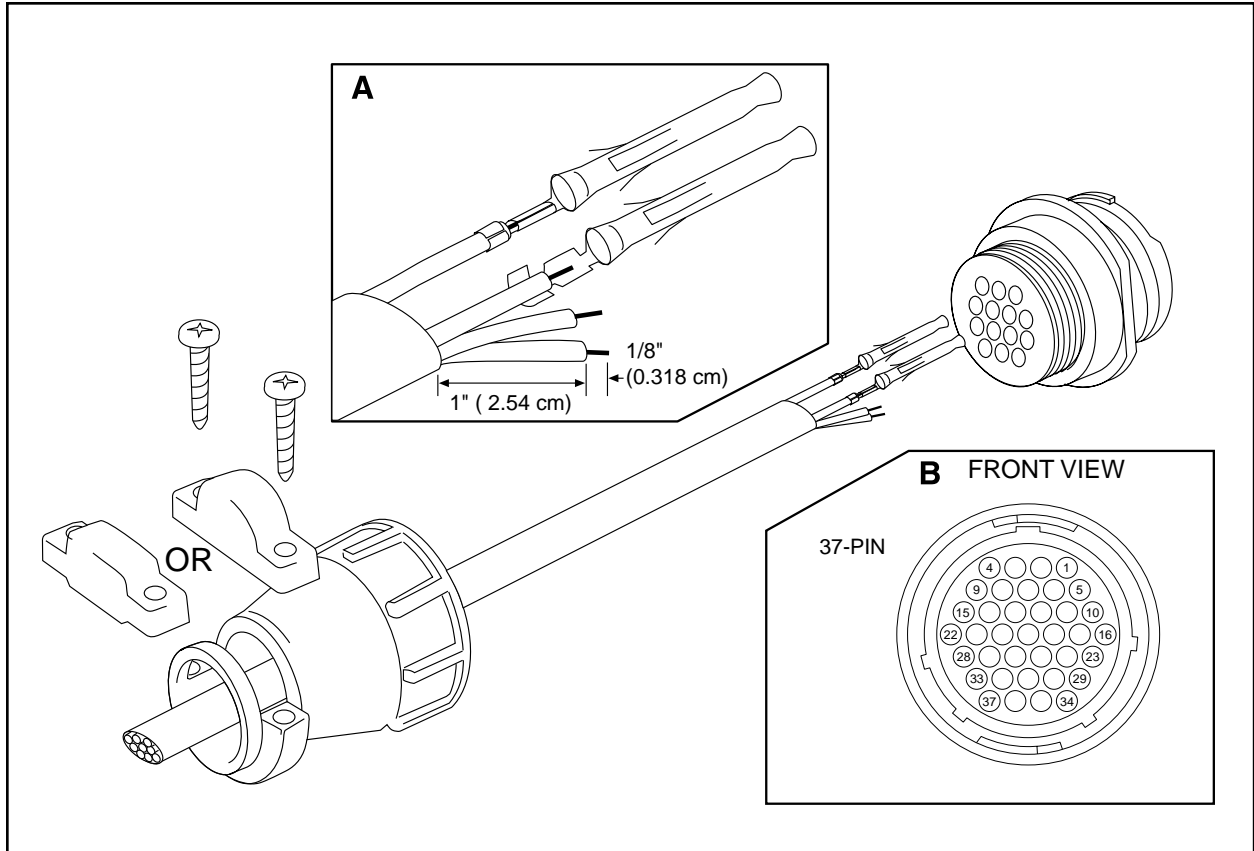
If your camera uses 12 VDC camera power, see Section 3.3.1, RECEIVER CONTROL OUTPUT FOR 12 VDC CAMERA OPTION.

If your receiver/driver has preset positioning, wire the presets. See Section 3.4, COAXITRON® RECEIVER PRESETS.

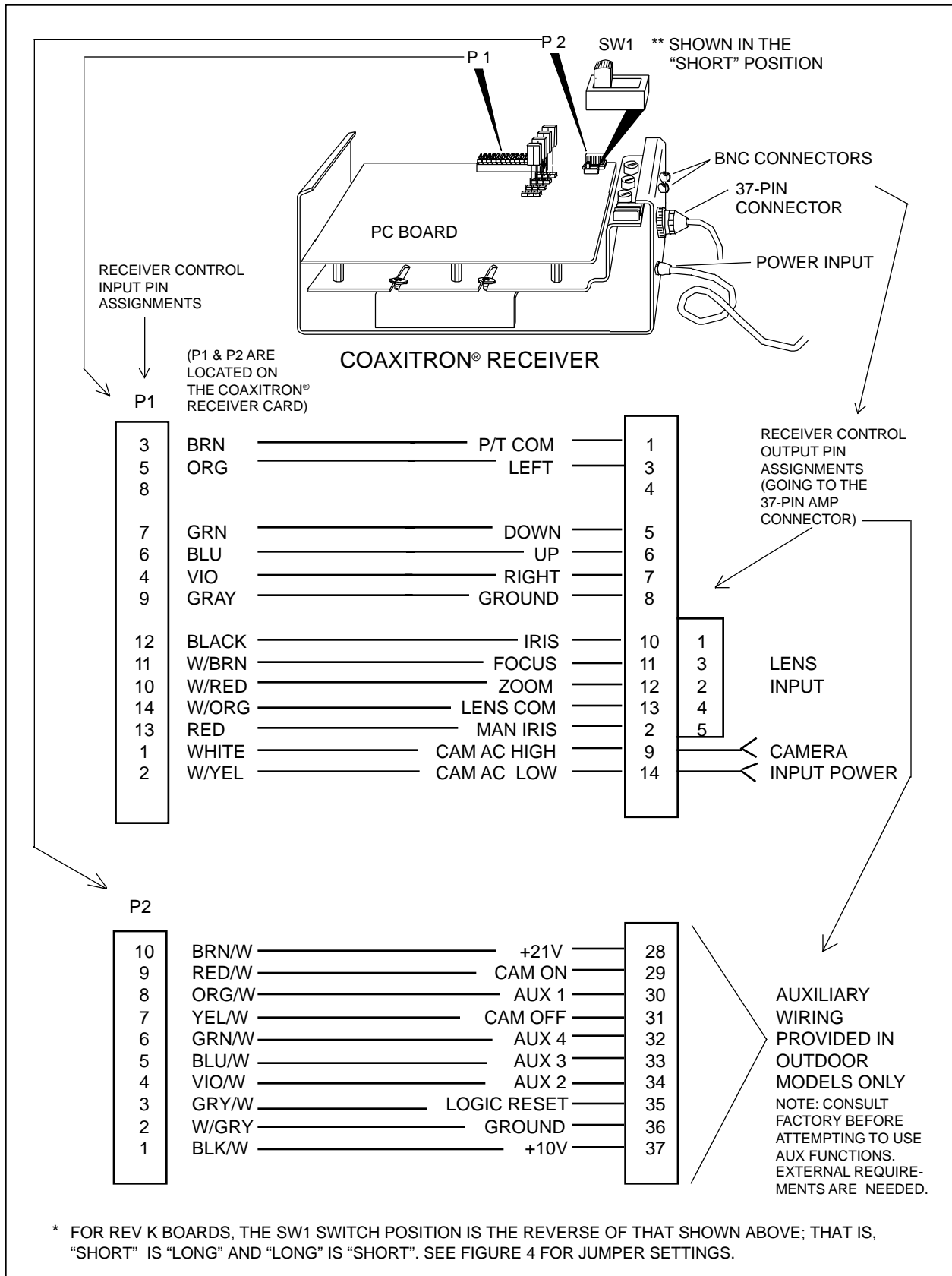
If you will use auxiliary functions to drive small relays, lamps, or other external devices, see Section 3.5, AUXILIARY FUNCTIONS.

4. Push the connector clamp assembly (with boot, if used) toward the connector body. Screw the clamp assembly onto the connector body, being careful not to disturb the wires.
5. To complete the assembly, attach the appropriate clamp with the screws provided and tighten.
6. When you are finished wiring the connector, connect the 37-pin assembly into the CX9000.

**Proceed to Section 3.6, POWER**



**Figure 1. Connector Assembly**



**Figure 2.** Receiver Control Output/Input Pin Assignments

### 3.3.1 Receiver Control Output for 12 VDC Camera Option

The usual output for camera power is 24 VAC, accessed at pins 9 and 14 of the 37-pin AMP connector (see Table C) where camera AC (high) and camera AC (low) emerge as camera input power.

The output pin assignments remain the same for 12 VDC camera power options. However, pin 9 is positive (+) and pin 14 is negative (-).

### 3.4 COAXITRON® RECEIVER PRESETS

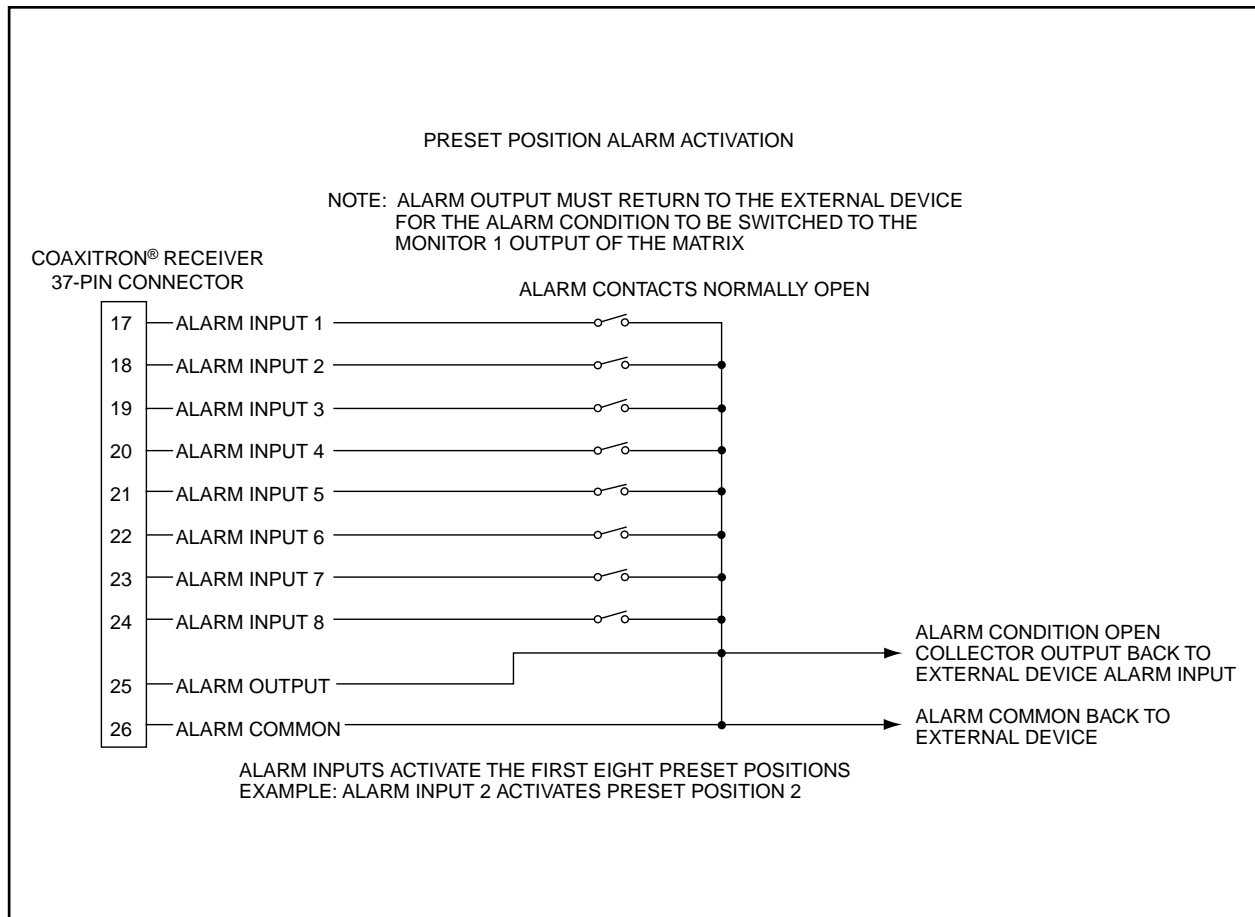
*NOTE: The Coaxitron® receiver with preset positions is designed for use with preset capable Coaxitron® controllers only.*

The Coaxitron® system uses precision linear taper potentiometers as position feedback sensors. This feedback voltage is digitized and stored in the receiver. Preset storage is in a nonvolatile EEPROM. This assures the preset information is stored for future use.

Up to 32 presets can be stored in each receiver. Up to eight presets can be activated by alarm contacts connected to the receiver. There is also an open collector output from the receiver to activate an external device when the alarm contacts are activated. Figure 3 shows the wiring for alarmed presets.

If multiple alarms are activated, the receiver will sequence between the alarm presets at a 5-second dwell time per preset.

Refer to Figure 3 and Tables B, C, and D when assembling pin-to-pin wiring connections from preset domes, pan/tilts and lenses to the Coaxitron® receiver.



**Figure 3.** Wiring Diagram for Pre-position Alarm Outputs

**Table B.** SB1900, SS2000 and SB2600 Series Preset Wiring Pinouts

Coaxitron® Receiver Preset Unit Only		SB2600-PP and SB2600SL-PP		SB1900-PP, SB1900SL-PP, SS2000-PP and SS2000SL-PP	
37-pin Connector	Function	37-pin Connector	Function	28-pin Connector	Function
1	Pan/Tilt Common	1	Pan/Tilt Common	1	Pan/Tilt Common
2	Manual Iris	2	Not Used	2	Video Core
3	Pan Left	3	Pan Left	3	Pan Left
4	Video Shield	4	Video Shield	4	Video Shield
5	Tilt Down	5	Tilt Down	5	Tilt Down
6	Tilt Up	6	Tilt Up	6	Tilt Up
7	Pan Right	7	Pan Right	7	Pan Right
8	Ground	8	Ground	8	Ground
9	Camera AC (High)	9	Camera AC (High)	9	Camera AC (High)
10	Iris	10	Iris	10	Iris
11	Focus	11	Focus	11	Focus
12	Zoom	12	Zoom	12	Zoom
13	Lens Common	13	Lens Common	13	Lens Common
14	Camera AC (Low)	14	Camera AC (Low)	14	Camera AC (Low)
15	Not Used	15	Not Used	15	Not Used
16	Not Used	16	Not Used	16	Not Used
17	Alarm Input 1	17	Not Used	17	Preset +5V
18	Alarm Input 2	18	Not Used	18	Preset Ground
19	Alarm Input 3	19	Not Used	19	Cam Sync-C
20	Alarm Input 4	20	Not Used	20	Preset Zoom
21	Alarm Input 5	21	Not Used	21	Preset Focus
22	Alarm Input 6	22	Not Used	22	Preset Pan
23	Alarm Input 7	23	Not Used	23	Preset Tilt
24	Alarm Input 8	24	Not Used	24	Preset Pan (SL models only)
25	Alarm Output	25	Not Used	25	Not Used
26	Ground	26	Not Used	26	Not Used
27	Video Core	27	Video Core	27	Not Used
28	Preset Ground	28	Preset Ground	28	Not Used
29	Preset +5 V	29	Preset + 5V		
30	Not Used	30	Cam Sync - C		
31	Not Used	31	Not Used		
32	Not Used	32	Not Used		
33	Pan B Preset	33	Preset Pan		
34	Preset Focus	34	Preset Focus		
35	Preset Zoom	35	Preset Zoom		
36	Preset Tilt	36	Preset Tilt		
37	Pan A Preset (360)	37	Preset Pan (SL models only)		

**Table C.** PT280, PT520, PT550, PT570, PT680, PT1250, PT1280 and SB2800 Series Preset Wiring Pinouts

Coaxitron® Receiver Preset Unit Only		Preset Position Pan/Tilts PT520, PT550, PT570 and PT1250 Series		Preset Position Pan/Tilts PT280, PT680 Series and SB2800 Series Domes/ PT1280P/PP and PT1280SL/PP	
37-pin Connector	Function	37-pin Connector	Function	28-pin Connector	Function
1	Pan/Tilt Common	1	Pan/Tilt Common	1	Pan/Tilt Common
2	Manual Iris	2	Preset Pan	2	Video Core
3	Pan Left	3	Pan Left	3	Pan Left
4	Video Shield	4	Video Shield	4	Video Shield
5	Tilt Down	5	Tilt Down	5	Tilt Down
6	Tilt Up	6	Tilt Up	6	Tilt Up
7	Pan Right	7	Pan Right	7	Pan Right
8	Ground	8	Ground	8	Ground
9	Camera AC (High)	9	Preset Tilt	9	Camera AC (High)
10	Iris	10	Preset Ground	10	Iris
11	Focus	11	Preset +5 V	11	Focus
12	Zoom	12	Not Used	12	Zoom
13	Lens Common	13	Not Used	13	Lens Common
14	Camera AC (Low)	14	Not Used	14	Camera AC (Low)
15	Not Used	15	Not Used	15	Not Used
16	Not Used	16	Not Used	16	Not Used
17	Alarm Input 1			17	Preset Ground
18	Alarm Input 2			18	Preset + 5 V
19	Alarm Input 3			19	Preset Pan
20	Alarm Input 4			20	Preset Tilt
21	Alarm Input 5			21	Not Used
22	Alarm Input 6			22	Not Used
23	Alarm Input 7			23	Preset Zoom
24	Alarm Input 8			24	Preset Focus
25	Alarm Output			25	Preset Pan (SL models only)
26	Ground			26	Not Used
27	Video Core			27	Not Used
28	Preset Ground			28	Not Used
29	Preset +5 V				
30	Not Used				
31	Not Used				
32	Not Used				
33	Pan B Preset				
34	Preset Focus				
35	Preset Zoom				
36	Preset Tilt				
37	Pan A Preset (360)				



**Table D. Lens Preset Wiring Pinouts**

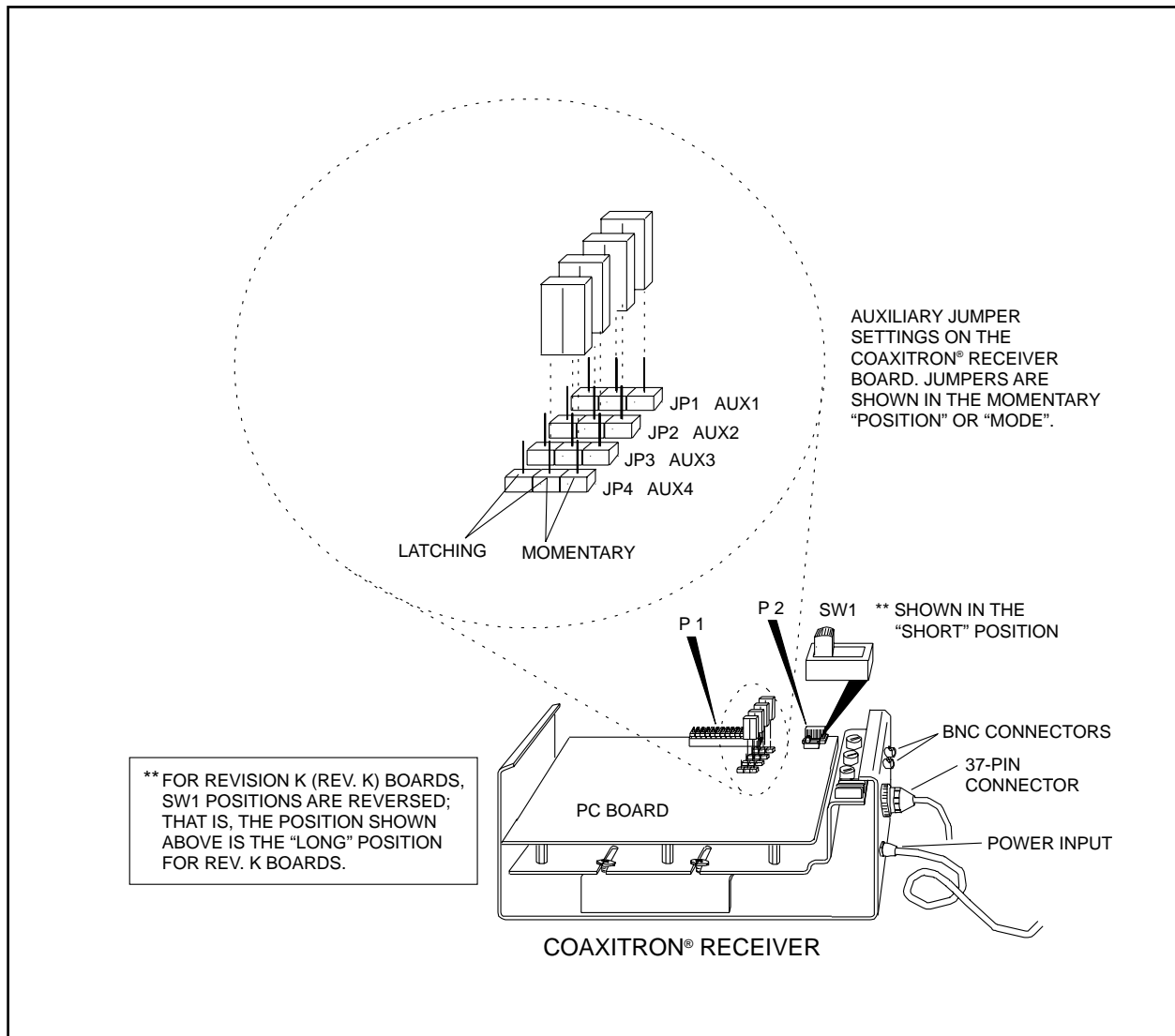
<b>Coaxitron® Receiver Preset Unit Only</b>		<b>Preset Position Lenses</b>	
<b>37-pin Connector</b>	<b>Function</b>	<b>9-pin Connector</b>	<b>Function</b>
1	Pan/Tilt Common	1	Iris
2	Manual Iris	2	Zoom
3	Pan Left	3	Focus
4	Video Shield	4	Lens Common
5	Tilt Down	5	Ground
6	Tilt Up	6	Preset +5V
7	Pan Right	7	Preset Zoom
8	Ground	8	Preset Ground
9	Camera AC (High)	9	Preset Focus
10	Iris		
11	Focus		
12	Zoom		
13	Lens Common		
14	Camera AC (Low)		
15	Not Used		
16	Not Used		
17	Alarm Input 1		
18	Alarm Input 2		
19	Alarm Input 3		
20	Alarm Input 4		
21	Alarm Input 5		
22	Alarm Input 6		
23	Alarm Input 7		
24	Alarm Input 8		
25	Alarm Output		
26	Ground		
27	Video Core		
28	Preset Ground		
29	Preset +5 V		
30	Not used		
31	Not used		
32	Not used		
33	Pan B Preset		
34	Preset Focus		
35	Preset Zoom		
36	Preset Tilt		
37	Pan A Preset (360)		

### 3.5 AUXILIARY FUNCTIONS

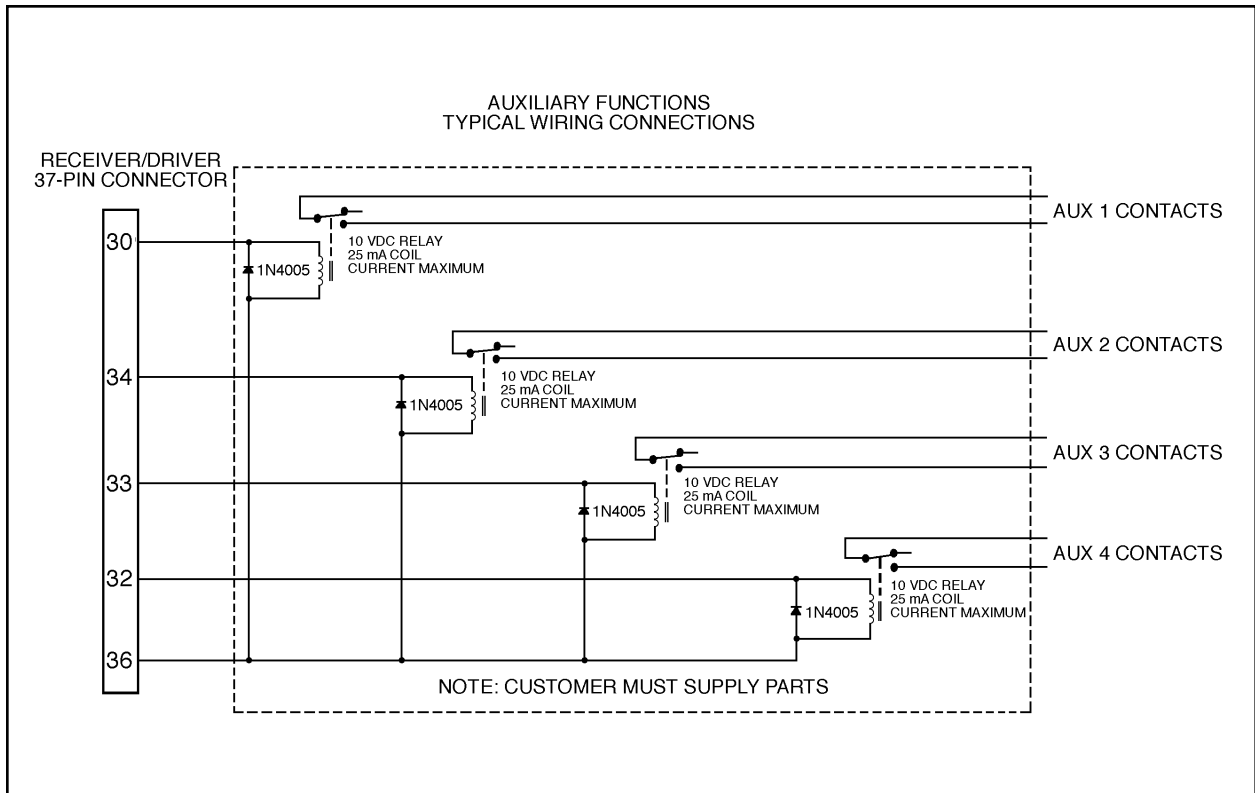
The Coaxitron® receiver, using a Revision J or newer receiver/driver PC board, is capable of operating up to four remotely activated auxiliary functions. Each auxiliary output may be individually converted at the receiver for momentary or latching operation. Refer to Figure 4 to set jumpers for auxiliary functions. When in the latching mode, activating the same AUX function will toggle the function from on to off.

The AUX outputs are buffered to provide a continuous 10 VDC at 25 mA to drive small relays, lamps or other external devices. Refer to Figures 5 and 6 for examples of typical circuits used for auxiliary functions.

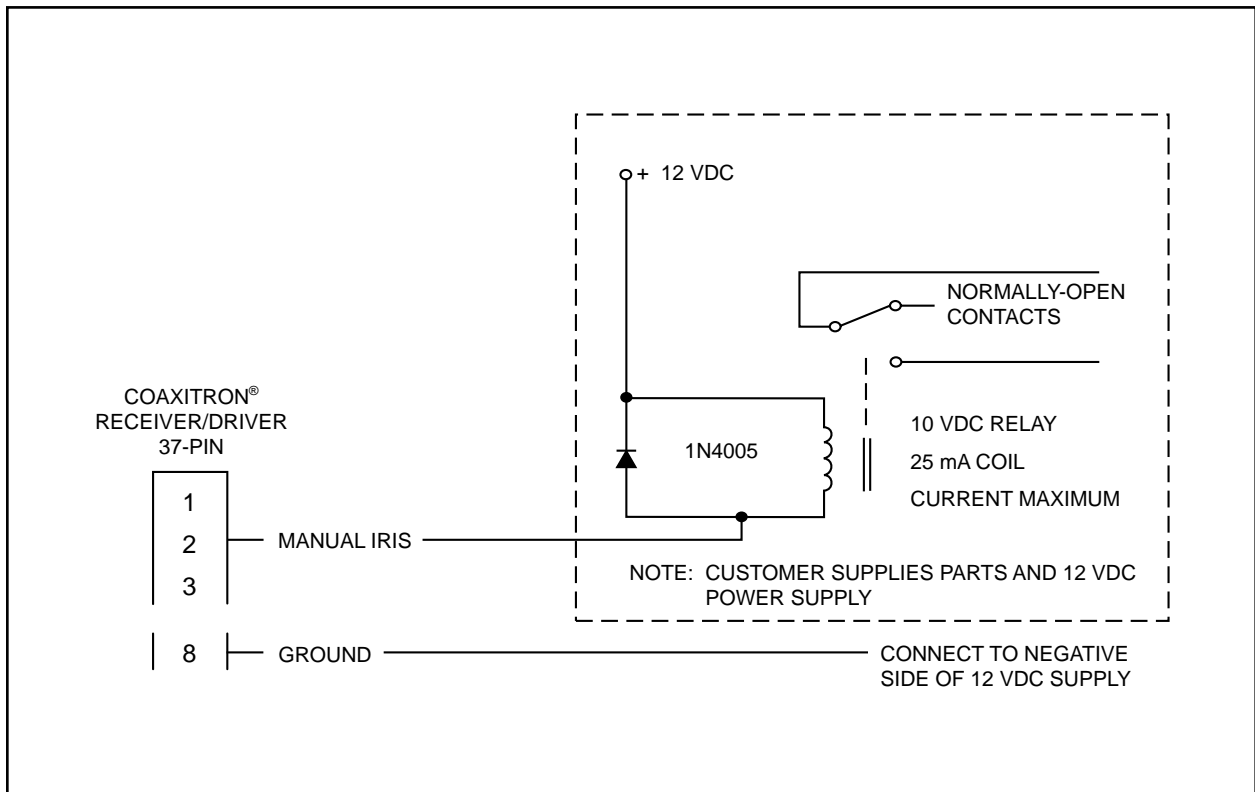
Figure 5 shows a typical connection using the latching command to operate an external device for auto iris or manual iris operation (AUX 1 latches manual iris and AUX 2 latches auto iris.)



**Figure 4.** Jumper Settings on the Receiver/Driver PC Board



**Figure 5.** Auxiliary Functions Wiring Diagram



**Figure 6.** External Device Wiring Diagram

### 3.6 POWER

There is no on/off switch. The CX9000 is "hot" when the fuse is installed and the input wiring is connected.

Refer to Table E for the recommended maximum distances when wiring 24 VAC applications. Refer to Figure 7 for AC input configurations and recommended fuse values.

**Proceed to Section 4.0, OPERATION**

**Table E. 24 VAC Wiring Distances**

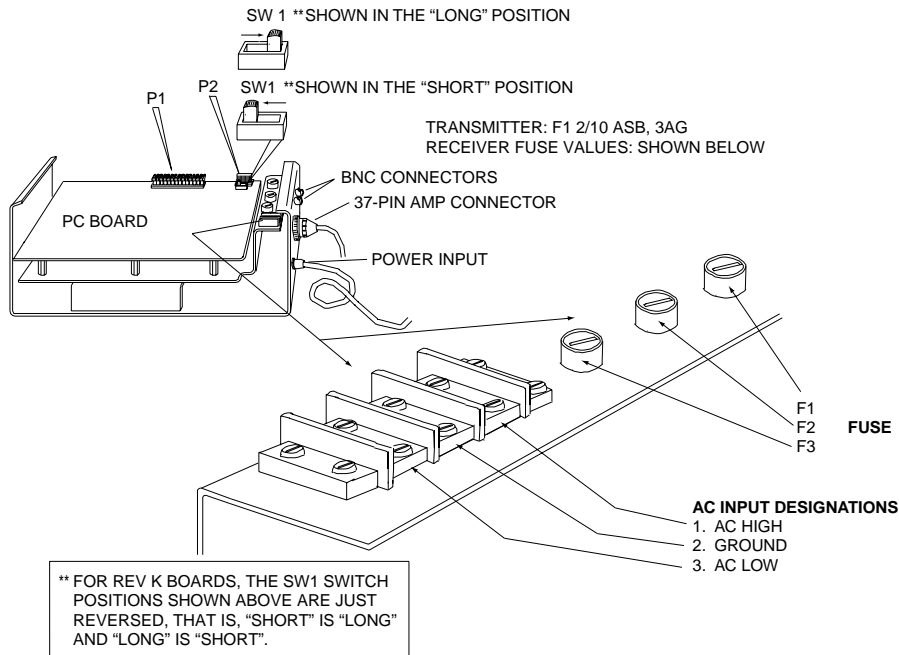
The following are the recommended maximum distances for 24 VAC applications and are calculated with a 10 percent voltage drop. (Ten percent is generally the maximum allowable voltage drop for AC-powered devices.)

*EXAMPLE: An enclosure that requires 80 vA and is installed 35 feet (10 m) from the transformer would require a minimum wire gauge of 20 Awg.*

*NOTE: Distances are calculated in feet; values in parentheses are meters.*

		<b>Wire Gauge</b>					
		20	18	16	14	12	10
<b>Total vA consumed</b>	10	283 (86)	451 (137)	716 (218)	1142 (348)	1811 (551)	2880 (877)
	20	141 (42)	225 (68)	358 (109)	571 (174)	905 (275)	1440 (438)
	30	94 (28)	150 (45)	238 (72)	380 (115)	603 (183)	960 (292)
	40	70 (21)	112 (34)	179 (54)	285 (86)	452 (137)	720 (219)
	50	56 (17)	90 (27)	143 (43)	228 (69)	362 (110)	576 (175)
	60	47 (14)	75 (22)	119 (36)	190 (57)	301 (91)	480 (146)
	70	40 (12)	64 (19)	102 (31)	163 (49)	258 (78)	411 (125)
	80	35 (10)	56 (17)	89 (27)	142 (43)	226 (68)	360 (109)
	90	31 (9)	50 (15)	79 (24)	126 (38)	201 (61)	320 (97)
	100	28 (8)	45 (13)	71 (21)	114 (34)	181 (55)	288 (87)
	110	25 (7)	41 (12)	65 (19)	103 (31)	164 (49)	261 (79)
	120	23 (7)	37 (11)	59 (17)	95 (28)	150 (45)	240 (73)
	130	21 (6)	34 (10)	55 (16)	87 (26)	139 (42)	221 (67)
	140	20 (6)	32 (9)	51 (15)	81 (24)	129 (39)	205 (62)
	150	18 (5)	30 (9)	47 (14)	76 (23)	120 (36)	192 (58)
	160	17 (5)	28 (8)	44 (13)	71 (21)	113 (34)	180 (54)
	170	16 (4)	26 (7)	42 (12)	67 (20)	106 (32)	169 (51)
	180	15 (4)	25 (7)	39 (11)	63 (19)	100 (30)	160 (48)
	190	14 (4)	23 (7)	37 (11)	60 (18)	95 (28)	151 (46)
	200	14 (4)	22 (6)	35 (10)	57 (17)	90 (27)	144 (43)

**Maximum distance from transformer to load**



POWER INPUT VAC	OUTPUT P/T VAC	120VAC IN	230VAC IN	230VAC IN	24VAC IN	120VAC IN
		24VAC P/T OUT	24VAC P/T OUT	230VAC P/T OUT	24VAC P/TOUT	120VAC P/T OUT
P/T	F3	1ASB	.5A/250V 5X20MM	1/2ASB	3A	1ASB
CAMERA	F2	2/10ASB *1/2ASB	.1A/250V 5X20MM	1/10ASB	1A	2/10ASB
PC BOARD	F1	NOT USED	NOT USED	2/10ASB	NOT USED	2/10ASB
Additional combinations of equipment options are possible depending on customer need & availability. This listing covers the most used and/or the most available type units & their options.		CX9024RX CX9024RXI *12VDC Camera options use a 1/2ASB fuse value in this position in place of the 2/10's value.	CX9024RX/220 CX90224RX-PP220	CX9220RX CX9220RX-PP CX9220RXI CX9220RXI-PP 3AG TYPE FUSE	CX9224RX CX9224RX-PP CX9224RXI CX9224RXI-PP *CX9224RXI-12V *The CX9224 option with 12 VDC camera uses one fuse in the F3 position. It is a 3A fuse not a 3ASB fuse. Fuse positions F1 and F2 are not used.	CX9115RX CX9115RX-PP CX9115RXI CX9115RXI-PP 3AG TYPE FUSE
		*CX9024RXI-12V *CX9024RX-12V CX9024RX-PP CX9024RXI-PP 3AG TYPE FUSE				
					3AG TYPE FUSE	

Figure 7. AC Input and Fuse Values

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## 4.0 OPERATION

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### 4.1 Preset Power-up Routine

When a pre-position Coaxitron® receiver is first powered up, it goes through a routine that orients itself to the pan/tilt and lens connected to it.

The routine first automatically operates the lens zoom and focus functions. The pan/tilt will tilt up and down (nod yes) if the receiver reads feedback voltages (indicating a pre-position lens) or pan left and right (nod no) if it does not read any feedback voltages (indicating a manual lens).

The second part of the routine will operate the pan left and pan right functions. The pan/tilt will tilt up and down (nod yes) if it reads only one feedback voltage (indicating a pan/tilt with limit stops.) The pan/tilt will pan left and right (nod no) if it reads two feedback voltages (indicating a SL pan/tilt.)

This routine is a good troubleshooting indicator that the control cable has been wired properly. The total routine takes approximately 45 seconds to complete.

### 4.2 Creating Presets

Coaxitron® controllers capable of creating presets include the CM6700, CM7500, CM8500, CM9500, and CM9760-CXT. Refer to the installation operation manual for the Coaxitron® controller you are using when creating presets.

Refer to Figure 3 and Tables B, C, and D when assembling pin-to-pin wiring connections from preset domes, pan/tilts and lenses to the Coaxitron® receiver.

### 4.3 Auto/Random Operation

The A9000 Auto/Random Scan module is a plug-in PC board option for Coaxitron® receiver/drivers. This module provides auto scan and random scan modes for automatically controlling pan and tilts within preset limits. The random scan and auto scan functions are controlled by a MPT9000 Series controller.

Advantages of random scan:

1. Because the scan direction, scan period, and dwell period are unpredictable, unauthorized activities or intrusions are discouraged.
2. Because of the reduced duty cycle, gear train wear, cable fatigue, drive motor wear, and temperature rise are reduced. These factors all contribute to higher system reliability and increased equipment life.

Refer to the A9000 manual for installation and operation instructions.

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## 5.0 TROUBLESHOOTING

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### **GIT100 Ground Isolation Transformer**

Although Coaxitron® receiver/drivers are immune to transient or surge disturbances, their performance can be impaired when there are large ground loop voltages between associated controllers and the receiver/driver. The amplitude of ground loop potential that can be tolerated varies because of a combination of factors such as cable center conductor resistance, video signal amplitude, and cable length. If problems due to excessive ground loop problems appear, the GIT100 Ground Isolation Transformer can be used. Refer to the GIT100 manual for installation and operation instructions.

### **CX900TLC Manual Test Module**

The CX900TLC Manual/Test Board is a dual-purpose plug-in module that permits local operation of all functions directly from the receiver unit, and serves to verify that the receiver and accessories are operating properly by providing visual confirmation. This module also aids in troubleshooting receiver or controller operational problems. Refer to the CX900TLC manual for installation and operation instructions.

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## 6.0 MAINTENANCE

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Regularly scheduled maintenance is not required. Clean the outer surface of the receiver/driver with a non-abrasive cleaning cloth and antistatic cleaner. Do not use kerosene or similar substances that may damage the surface.

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## 7.0 SPECIFICATIONS

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### MECHANICAL

Latching  
Fiberglass Box: Two latches (accommodates padlocks - not supplied)

Anodized  
Metal Box: No latches. Two Phillips head screws open cover of box.

Painted  
Metal Box: Two latches (accommodates padlocks - not supplied)

### ELECTRICAL

Input Voltage  
Fiberglass Box: 120 VAC, 60 Hz (jumper selectable for 230 VAC, 50 Hz)

Anodized  
Metal Box: 120 VAC, 60 Hz (jumper selectable for 230 VAC, 50 Hz)

Painted  
Metal Box: 230 VAC, 50 Hz (CE version models)

Fuse Protection: See Figure 7, AC Input and Fuse Values

Power  
Consumption  
Receiver: 5 vA (120 VAC or 24 VAC)

Pan/Tilt Supply: 140 vA maximum (120 VAC)  
50 vA maximum (24 VAC)

Lens Supply: 0-4 vA maximum

Camera Supply: 15 vA (typical)

Control Method: 15-pulse train (pulse width modulated) superimposed on the video signal during the vertical blanking interval by the control transmitter. Pulse train occupies one TV line period.

Pulse Amplitude: Approximately 1 Vp-p added to video signal, 333 kHz nominal

Connectors: Two BNC connectors for video input and output  
One 37-pin AMP CPC for control output (mate supplied)  
One adjustable PG-13 liquid tight gland connector for power

Input Video Level: 1 Vp-p nominal; 2 Vp-p maximum at less than 75 percent APL;  
1.5 Vp-p maximum at 90 percent APL

System Bandwidth: Less than 2 dB down at 10 MHz (exclusive of cable)

Power Cord: 3-wire grounded, #18 AWG

### GENERAL

Construction  
and Finish: Dark gray fiberglass box (Most outdoor models)  
Anodized Aluminum box (Most indoor models)  
Gray polyester powder coat Aluminum box (230 VAC CE  
version models only)

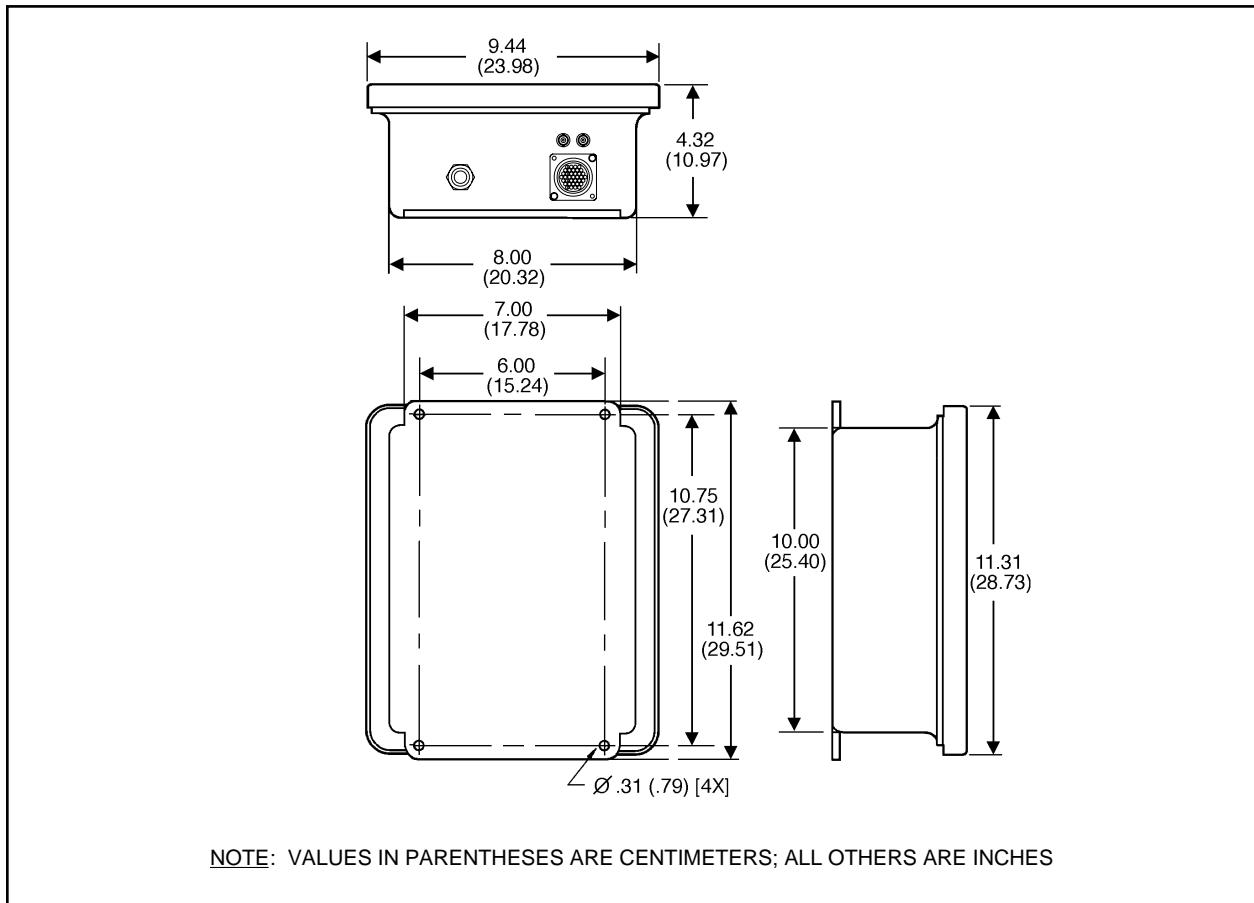
Operating  
Temperature: -4° to 140°F (-20° to 60°C)



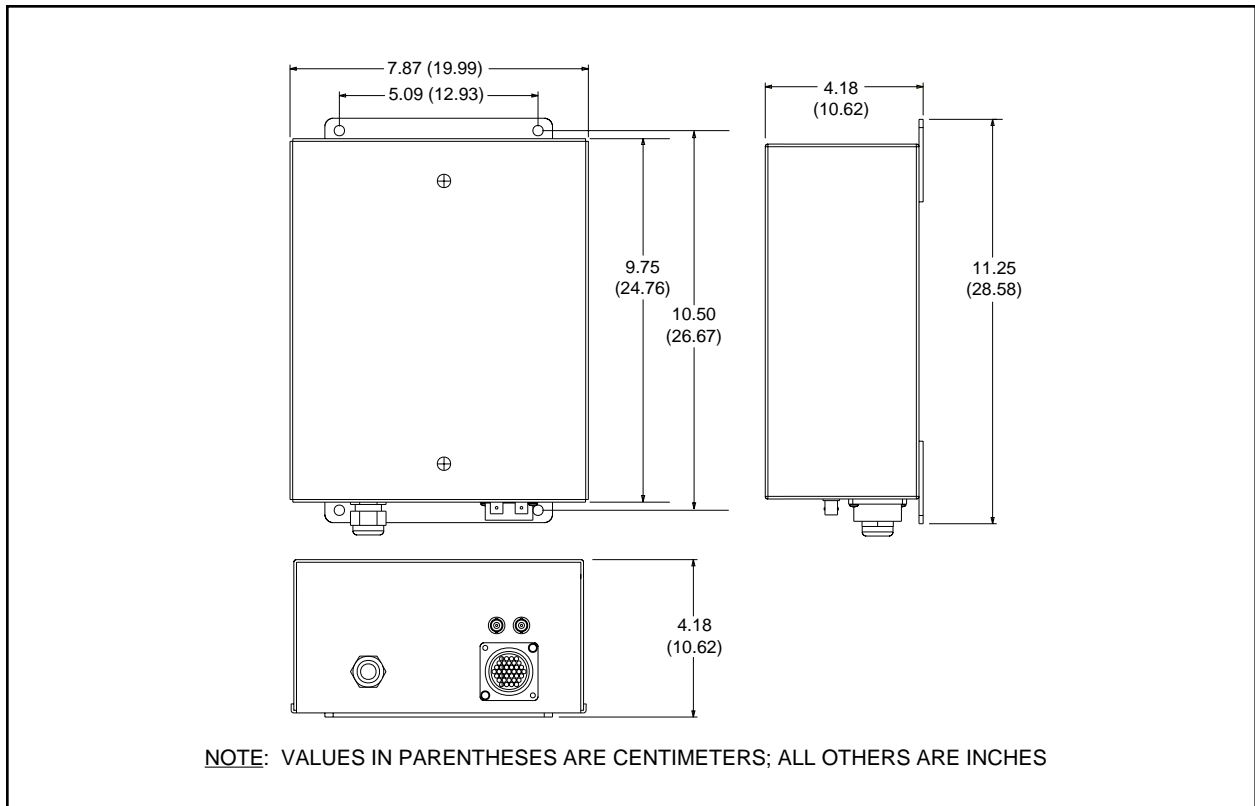
Weight (typical)	Unit	Shipping
Fiberglass Box:	6 lb (2.72 kg)	8 lb (3.63)
Anodized Metal Box:	6 lb (2.72 kg)	8 lb (3.63)
Painted Metal Box:	9.65 lb (4.36)	10.95 lb (4.98 kg)
(Actual weights for CX9024RX/220)		

Dimensions: See Figure 8 for Fiberglass Box Receiver/Driver Dimension Drawing  
 See Figure 9 for Anodized Metal Box Receiver/Driver Dimension Drawing  
 See Figure 10 for Painted Metal Box Receiver/Driver Dimension Drawing (CE Version)

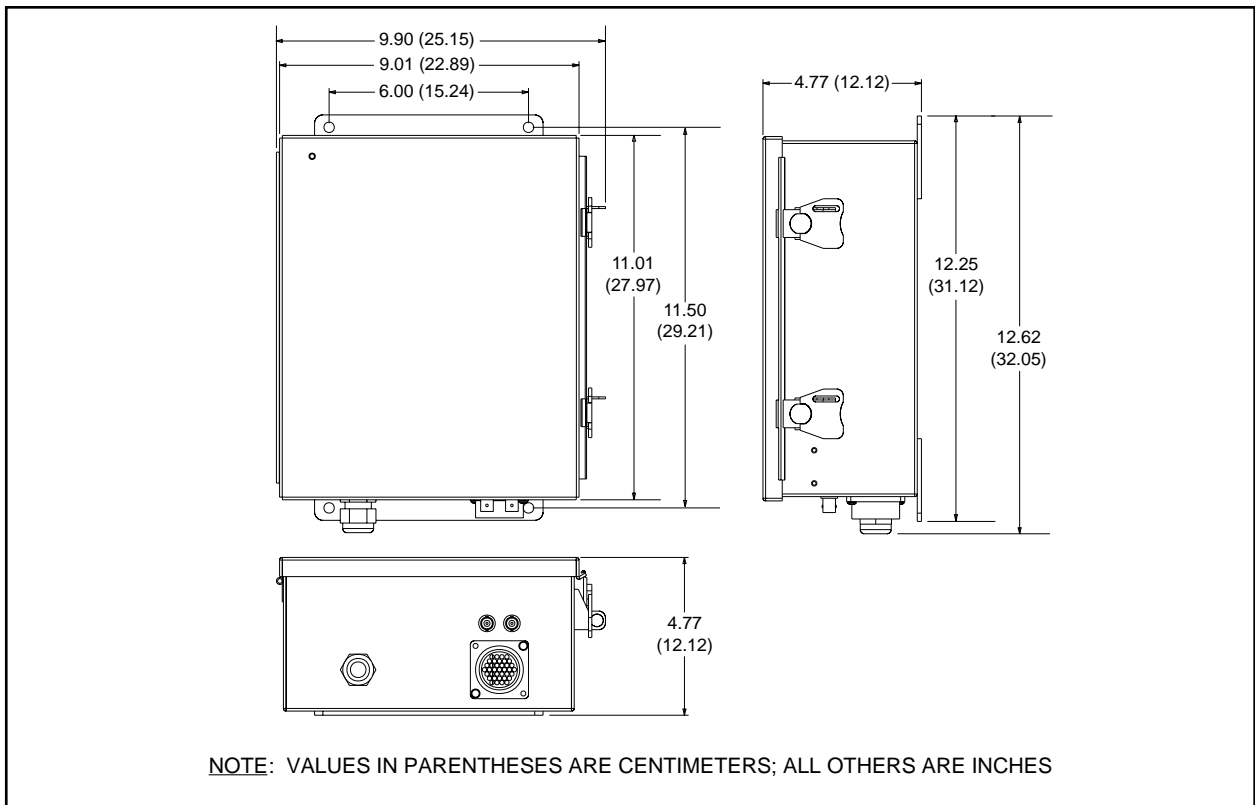
(Design and product specifications subject to change without notice.)



**Figure 8.** CX9000 Series Dimension Drawing (Fiberglass Box)



**Figure 9.** CX9000 Series Dimension Drawing (Alodine Metal Box)



**Figure 10.** CX9000 Series Dimension Drawing (Painted Metal Box-CE Version)

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## 8.0 WARRANTY AND RETURN INFORMATION

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### WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment. Exceptions to this warranty are as noted below:

- Three years on Genex™ Series multiplexers.
- Two years on all standard motorized and fixed focal length lenses.
- Two years on Legacy®, Intercept®, PV1000 Series, CM6700/CM8500/CM9500/CM9750/CM9760 Matrix, Spectra™, DF5 Series and DF8 Fixed Dome products.
- Two years on WW5700 series window wiper (excluding wiper blades).
- Two years on cameras.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warranty all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Ship freight prepaid to: Pelco  
300 West Pontiac Way  
Clovis, CA 93612-5699

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

### RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair). Goods returned for repair or credit should be clearly identified with the assigned CA/RA number and freight should be prepaid. All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Ship freight prepaid to: Pelco  
300 West Pontiac Way  
Clovis, CA 93612-5699

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